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KNOWLEDGE AND ATTITUDES TOWARD ORGAN DONATION AMONG HEALTH PROFESSIONALS IN A THIRD LEVEL HOSPITAL

Alejandro Montero Salinas (1), Santiago Martínez-Isasi (2,3), Eva Feira Costa (4), Antón Fernández García (1), Diana Josefa Castro Dios (2) and Daniel Fernández García (5)

(1) Oficina Coordinación de Trasplantes A Coruña. Complejo Hospitalario Universitario A Coruña CHUAC, SERGAS, A Coruña. Spain.

(2) Grupo Cardiopatías Familiares. Instituto de Investigación Biomédica de A Coruña (INIBIC), Complejo Hospitalario Universitario de A Coruña (CHUAC), SERGAS, A Coruña. Spain.

(3) Unidad de investigación en salud y podología. Departamento de Ciencias de la Salud. Facultad de Enfermería y Podología. Universidade da Coruña. A Coruña. Spain.

(4) Servicio de Cirugía Torácica. Complejo Hospitalario Universitario de A Coruña (CHUAC), SERGAS, A Coruña. Spain.

(5) Universidad de León. Facultad de Ciencias de la Salud. León. Spain.

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ABSTRACT

Background: The Spanish model is the model adopted by many countries to increase their donation rate. The attitude of these before the donation is crucial for the hour of influence on the population. Organ transplantation has been established as an effective treatment that has been improving over the years. The objective was to determine the knowledge and attitudes of health professionals before the donation of organs.

Methods: Transversal descriptive study. An ad hoc questionnaire was conducted and distributed among the health professionals (medical staff, nurses and nursing assistants) of a tertiary hospital during February 2015. A total of 615 potential participants were estimated in the different areas of the hospital. They collected a total of 342 completed questionnaires (55%). The statistical analysis was performed with SPSS® version 20.0 Windows version. A level of significance $P < 0.05$ was used in all the analyzes.

Results: The average age of the respondents was 43.34 (SD=10.37) years, being 86.6% women and 60% nurses. 35.5% showed good knowledge about the donation process, being higher in men (51.1% vs 33.1%, $p < 0.05$), medical personnel (55% vs 34.3% vs 31.9%, $p < 0.05$) and lower in those services with a direct relationship with the donation process (36.8% vs 31.9%, $p < 0.05$). 71% of the professionals expressed their willingness to donate their organs, with special sensitivity towards donation those services in direct relation with the donation program (82.2% vs 65.9%, OR: 1.24, $p < 0.001$). 50% of the professionals would donate the organs of a family member; The medical group has the highest percentage (70% vs 50.7% vs 40.4%, OR: 3.8, $p < 0.05$). 74.5% knew some Spanish legal document about donation and transplants.

Conclusions: It is necessary to influence health professionals as a whole, since they had a low level of knowledge; not so in the attitude of these to the donation. The attitude of health professionals to the donation may be sufficient, but if it is reinforced with some knowledge about the donation process the donation rate can be increased, hence the importance of training programs on organ donation.

Key words: Health knowledge, Attitudes, Practice, Organ transplantation, Medical staff, Nursing staff.

RESUMEN

Conocimientos y actitudes ante la donación de órganos de los profesionales sanitarios de un hospital de tercer nivel

Fundamentos: El modelo español es el modelo adoptado por numerosos países para aumentar su tasa de donación siendo una de las claves de este éxito la implicación de los trabajadores sanitarios. La actitud de estos ante la donación resulta crucial a la hora de influir sobre la población. El trasplante de órganos se ha establecido como un tratamiento efectivo que ha ido mejorando a lo largo de los años. El objetivo de este estudio fue determinar los conocimientos y actitudes de los profesionales sanitarios ante la donación de órganos.

Métodos: Estudio descriptivo transversal. Se realizó un cuestionario *ad hoc* y se distribuyó entre los profesionales sanitarios (personal médico, enfermería y auxiliares de enfermería) de un hospital de tercer nivel durante febrero 2015. Se estimó un total de 615 potenciales participantes en las diferentes áreas del hospital. Se recogieron un total de 342 cuestionarios cumplimentados en su totalidad (55%). El análisis estadístico se realizó con SPSS® versión 20.0 versión Windows. Se utilizó un nivel de significación $P < 0,05$ en todos los análisis.

Resultados: El promedio de edad de los encuestados fue de 43,34 (DT=10,37) años, siendo el 86,6% mujeres y el 60% enfermeras. El 35,5% mostraron buenos conocimientos sobre el proceso de donación, siendo mayor en hombres (51,1% vs 33,1%; $p < 0,05$), personal médico (55% vs 34,3% vs 31,9%; $p < 0,05$) e inferior en aquellos servicios con una relación directa con el proceso de donación (36,8% vs 31,9%; $p < 0,05$). El 71% de los profesionales manifestaron estar dispuestos a donar sus órganos, con especial sensibilidad hacia la donación aquellos servicios en relación directa con el programa de donación (82,2% vs 65,9%; OR:1,24; $p < 0,001$). El 50% de los profesionales donarían los órganos de un familiar; siendo el colectivo médico el que presentaba un porcentaje mayor (70% vs 50,7% vs 40,4%; OR:3,8; $p < 0,05$). El 74,5% conocía algún documento legal español sobre donación y trasplantes.

Conclusiones: Los profesionales de la salud en su conjunto tienen un bajo nivel de conocimiento, pero una buena actitud hacia la donación.

Palabras clave: Conocimiento, Actitudes, Trasplante de órganos, Cuerpo médico, Personal de enfermería, Obtención de Tejidos y Órganos, Actitud del Personal de Salud, Trasplantes, Donaciones.

Correspondence:

Alejandro Montero Salinas
 Oficina de Coordinación de Trasplantes
 Complejo Hospitalario Universitario de A Coruña
 As Xubias, 84
 15006 A Coruña, Spain
 Alejandro.Montero.Salinas@sergas.es

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INTRODUCTION

Organ procurement is a complex process in which a significant number of healthcare and non-healthcare professionals are involved, both at the hospital and out-of-hospital levels⁽¹⁾. The attitude of health professionals, both positive and negative, will influence the population at the time of donation and these attitudes can be modified by experiences with the world of donation or by attending courses that teach them about organ donation⁽²⁾. Thus, when the opinion and attitude of the professionals is positive, it favors donation⁽³⁾.

It has been shown that 96% of health professionals are in favor of organ donation⁽⁵⁾. Among the factors that influence the presentation of positive attitudes are sociodemographic factors, profession and job occupation. In this way, men and married people, doctors and professionals with direct exposure to donation have more positive attitudes to the donation process. Another factor that also influences is the opinion of family members and having discussed the issue within the family⁽⁴⁾.

In Spain, the opinion of the population regarding donation is favorable⁽⁵⁾, being the country with the highest donation rates in the world^(5,6).

Health systems must consider full donation as an objective to achieve, since donation is established as one of the care at the end of life, so it is necessary to provide truthful information that generates a favorable opinion in the population towards organ and tissue donation. The basis for achieving this objective is the training of the population and health and non-health personnel^(3,5,7), both in the hospital and out-of-hospital settings.

The involvement and training of the professional in the organ and tissue donation and

transplantation process may favor an increase in the donation rate^(1,8).

The Transplantation Coordination Office of the Complejo Hospitalario Universitario A Coruña (CHUAC) develops brain death donation programs, controlled and uncontrolled asystole donation programs, living kidney donor program and tissue donor program.

The objective of the study was to determine the knowledge and attitudes about the donation process in health professionals from a third-level or reference hospital that has heart, lung, liver, pancreatic, kidney, and tissue transplant programs.

SUBJECTS AND METHODS

A descriptive cross-sectional study was conducted in a tertiary hospital with an organ donation and transplantation program using a self-administered questionnaire and sampling for convenience. The study was approved by the Galician ethics committee.

This was a non-validated ad hoc questionnaire (annex I) based on the one validated by Rios et al⁽⁴⁾, which consisted of 3 parts. The first collected sociodemographic and professional information, the second part consisted of 6 questions about knowledge of different aspects of organ donation (questions 1, 2, 3, 4, 5 and 9), arbitrarily establishing the threshold of 4 questions or more accurate to consider an acceptable knowledge about donation, and the third part collected information on attitude and emotional aspects in 5 questions (Questions 6, 7, 8, 10, 11).

The distribution of the questionnaire began in February 2015, establishing a period of 20 days for its submission to the CHUAC Transplantation Coordination Office. The deadline for receiving questionnaires was April 1st, 2015.

Copies of the questionnaire were deposited for the entire workforce and meetings were held with the Nursing supervisors and Heads of service of each service and / or unit to explain the study and methodology.

The services and / or units included in the study were those that were in direct contact with the field of transplants: cardiology, cryobiology, thoracic surgery, dialysis, pulmonology, digestive, operating room, resuscitation, adult and pediatric intensive care unit, and also others that were not in contact: vascular surgery, general surgery, internal medicine, traumatology, pediatric units, otorhinolaryngology and maxillo-facial surgery, oncology, outpatients services and gynecology.

The sample calculation was made from the data from the official templates of the different units and services. A potential study population of 720 professionals was evidenced, of which 105 were discarded as they were not permanent staff of the unit. 342 fully completed questionnaires were received (55%), excluding those which were not fulfilled (80 questionnaires) from the study, which allowed an estimation of the level of knowledge about transplant donation with an accuracy of $\pm 5.3\%$ and safety 95%.

The results of the qualitative variables were expressed using frequency and percentage parameters, while the results of the quantitative variables were expressed using central tendency and dispersion parameters. Bivariate analysis, chi square for categorical or qualitative variables, and the t-test for quantitative. In the case of normal variance, the Wilcoxon test, and when there was no homogeneity, the Kruskal-Wallis non-parametric test. The comparison of means was made, after checking normality with the Kolmogorov-Smirnov test, with the T student test or the U Mann-Whitney test, as appropriate.

In all analyzes, odds ratios (OR) and 95% confidence intervals (CI) were calculated for each covariate; In the case of the independent variable age, a dichotomous age interval was established (18-44 years and 45-65 years).

The data has been analyzed using the Statistical Package for the Social Sciences® (SPSS) version 20.0. A significance level $P < 0.05$ was used in all analyzes.

RESULTS

Socio-demographic characteristics. A total of 342 questionnaires were received, representing a response rate of 55%.

Among the professionals studied, the average age was 43.34 (DT=10.37) years; In the analysis by groups, a higher percentage was observed in the group between 31-50 years (56.9%). 86.6% of the respondents were women and the most represented class was nursing (60.5%). 25.9% of the services participating in the study had direct contact with the hospital's donation and transplant program.

Knowledge. When performing the knowledge analysis on organ donation and transplants, the average of correct answers was 3.13 out of 6 (DT=1.07) and 35.3% completed 4 or more questions correctly. Among the professionals who completed 4 answers correctly, the men presented higher figures of knowledge than the women (51.1% vs 33.1%; $p=0.014$; OR: 1.5-95% CI 1.12-2.13), the services in direct relation to the donation presented lower percentages (36.8% vs 31.9%; $p=0.266$) and the doctors presented higher percentages than nurses and TCAE (Auxiliary Nursing Care Technician) (55% vs 34, 3% vs 31.9%; $p>0.019$).

70% of the professionals surveyed knew that brain death represented the death of the

individual, obtaining higher percentages among personnel working in services with a direct relationship (89% vs. 75.1; $p=0.003$) and among men (92, 5% vs 76.7; $p=0.012$). When asked about the diagnostic test that was not used in the diagnosis of brain death (ME), a higher percentage of accuracy of the medical personnel was observed with respect to nurses and nurse aides (65% vs 18.3% vs 21%; $p<0.001$); Higher figures were also observed between the male sex (38.4 vs 18.4; $p<0.003$) and in the age range of 18-30 years (39.1% vs 19.4% vs 16.2%; $p=0.004$) with respect to the age intervals 31-50 and 51-65 years.

79% of the professionals surveyed were unaware of the number of doctors who signed the death certificate of a donor in brain death, and also that the Spanish transplant law did not include the obligation to ask families to obtain the donation (80.4%).

When asked if they knew the legal value of the donor card, 57,4% answered no and the older ones responded appropriately (55,2% vs 36,8% vs 39,1%; $p=0,007$), men (59,6% vs 40%; $p=0,009$) and services with a direct relationship with organ donation and transplants (70,3% vs 52,9; $p=0,003$).

68,8% considered that a person who died of cardiac arrest was suitable to be a donor.

Attitudes. 78.1% of the professionals surveyed would be willing to donate organs, with services with direct contact with the program having less sensitivity to donation (82.2% vs 65.9%; $p=0.001$) and doctors being more sensitive. (92.5 vs 78.5 vs 71.7%; $p=0.027$). When asked about the donation of family organs, the percentage dropped to 50%.

More than 80% of the professionals surveyed agreed with the limitation of the therapeutic effort of a relative with no possibility of

recovery; when considering the possibility of donating from a family member after the withdrawal of support measures in an intensive care service, the medical establishment was much more favorable to donation (70% vs 50.7% vs 40.4%; $p=0.006$) (table 1).

74.5% of the personnel included in the study knew of some type of legal documentation regarding the donation, with the best known living will (45.5%) followed by the advance directives document (15.1%).

DISCUSSION

In our study, we observed that the degree of knowledge as a whole was low, with the medical staff presenting the greatest number of correct responses, in line with the study by Ríos et al⁽⁴⁾. However, regarding the appreciation of brain death as a determination of the patient's death and the possibility of donation after cardiac arrest, the success rates increased.

The medical personnel presented a higher percentage of knowledge about the test necessary to diagnose brain death, data that agrees with the data reflected by Potenza et al⁽²⁾. This could be due to the fact that they are responsible for managing the tests necessary for the diagnosis and treatment of patients.

Regarding the attitude towards organ donation, this was positive, following the line of the data reflected in other national studies^(4,5,8,10), being what was expected in a population such as the Spanish one with the highest donation rate in the world. The percentage of health professionals willing to donate their organs was high, although lower than the study by Mateos-Rodríguez et al⁽⁸⁾, which may be due to a larger sample in our series since the study population was not focused only in the staff of the Emergency Service. As in Zambudio et al⁽¹⁰⁾, the attitude towards donation was less

Table 1
Attitude of health professionals towards organ and tissue donation.

Values		Would you be willing to donate your organs if you died?		And those of a relative of yours?		Do you know of any document that has legal value to express in life your desire to be a donor?		Would you agree with the withdrawal of the ICU support measures if a family member of yours did not have possibilities of recovery?		Would you donate the organs of a relative of yours after the withdrawal of support measures in the ICU?	
		Affirmative answer		Affirmative answer		Affirmative answer		Affirmative answer		Affirmative answer	
		n (%)	p	n (%)	p	n (%)	p	n (%)	p	n (%)	p
Gender	Male	38 (80.9)	0.627	27 (57.4)	0.191	41 (87.2)	0.953	41 (87.2)	0.553	26 (55.3)	0.433
	Female	237 (77.7)		144 (47.2)		267 (87.5)		267 (87.6)		150 (49.2)	
Age (years)	18-30	41 (89.1)	0.097	24 (52.2)	0.734	42 (91.3)	0.633	42 (91.3)	0.633	25 (54.3)	0.786
	31-50	157 (78.1)		99 (49.3)		176 (87.6)		176 (87.6)		98 (48.8)	
	51-65	77 (73.3)		48 (45.7)		90 (85.7)		90 (85.7)		53 (50.5)	
Sector	Doctor	37 (92.5)	0.027	25 (62.5)	0.100	34 (85.0)	0.879	34 (85)	0.879	28 (70)	0.006
	Nurse	167 (78.4)		104 (48.8)		187 (87.8)		187 (87.8)		108 (50.7)	
	Nurse aid	71 (71.7)		42 (42.4)		87 (87.9)		87 (87.9)		40 (40.4)	
Unit	Association	60 (65.9)	0.001	39 (42.9)	0.205	80 (87.9)	0.890	228 (87.4)	0.527	42 (46.2)	0.349
	Without association	215 (82.4)		132 (50.6)		228 (87.4)		80 (87.9)		134 (51.3)	

DUE (Bachelor of Nursing); TCAE (Auxiliary Nursing Care Technician).

than expected in the staff in direct relation to the transplant; which may determine a greater need for information and training in these services.

The youngest group of the surveyed population presented the highest percentage favorable to donation, which is similar to what has been shown^(2,10,15). This result can be explained due to the impact of the education and social awareness programs of the transplant coordination staff in the hospital, as well as the fact that the

youngest population is generally the most prone to donation and social collaboration.

The possible reason why the experienced services show less knowledge could be a low involvement in the process, since, with the exception of medical personnel, the rest focus on the task of caring for or maintaining the donor.

The percentage of affirmative answers is decreased when asked about the possibility

of donating the organs of a family member, similar to that reflected in previous studies^(5,10). This decrease could be explained by the non-manifestation in life by the potential donor of their will towards donation.

Since the donor card lacks legal validity, the family is presented as the safeguard of the patient's will⁽¹¹⁾, as long as there is no prior written evidence, such as the document of advance directives (of obligatory compliance for professionals given its legal validity)^(12,13).

Regarding the acceptance of the limitation of therapeutic effort, very high percentages of acceptance were observed, higher than those found in the study by Deulofeu et al⁽⁵⁾, although presenting lower percentages when considering the possibility of donation in controlled asystole.

The main limitation of the study is that a random sampling was not carried out and compliance with it was voluntary, and there may be a positive predisposition towards donation by the respondents. For the elaboration of the questionnaire, the questionnaire validated by Ríos et al⁽⁴⁾ has been used and questions have been added for those aspects that we wanted to evaluate, so we must take with caution the comparisons with the different populations studied and compared with our study.

The level of knowledge was lower than expected (less than 4 correct questions related to knowledge), while the attitude of the staff that our study showed was good. This will have a positive impact on the population since a professional with good attitudes⁽¹⁴⁾ will generate a favorable opinion towards donation⁽⁹⁾.

Training is the basic tool to reach full donation. Given that our starting point is a favorable attitude, and once the points for improvement have been observed, we must influence through training, knowledge, positive

attitudes and sensitivity towards donation as professionals involved in it and as potential disseminators of the donation.

Our study shows that the professionals' knowledge and attitudes towards organ donation in a third-level hospital are a low level of knowledge and a favorable attitude. Although there is a national and international bibliography regarding attitudes, our study combines the determination of attitudes with the evaluation of knowledge.

The main conclusion of the study is that the main factors that influence the knowledge and attitudes regarding organ donation are the lack of communication between the different levels in the donation process, so nurses and doctors have a good understanding of maintenance of the donor but it contrasts with the low knowledge of the nurses when it comes to the diagnostic processes that are necessary to certify brain death.

These are the aspects on which to emphasize the training that is carried out for the professionals.

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Annex I
Questionnaire for the evaluation of variables related to the knowledge and attitude of the health professionals surveyed.

Age: _____ Gender: _____ Unit: _____ Class: _____

1) Is a brain-dead patient definitely dead?

Yes _____ No _____ Sometimes _____

2) What tests of the following are NOT used to diagnose brain death?

EEG _____ Transcranial Doppler _____ CAT _____ Arteriography _____

3) How many doctors sign the death certificate of a brain dead donor?

1 _____ 2 _____ 3 _____ 4 _____

4) Does the Spanish Transplant Law include the obligation to ask families to obtain a donation?

Yes _____ No _____ Sometimes _____

5) Does the organ donor card have legal value?

Yes _____ No _____ Sometimes _____

6) Would you be willing to donate your organs if you died?

Yes _____ No _____

7) And those of a relative of yours?

Yes _____ No _____ What my family decides _____ Only if he/she has stated so _____

8) Do you know any document that has legal value to express in life your desire to be a donor?

Yes _____ No _____

If yes: which one?

9) Could a person who died of cardiac arrest become a donor?

Yes _____ No _____ Sometimes _____

10) Would you agree to the withdrawal of support measures in the ICU if a family member of yours had no chance of recovery?

Yes _____ No _____ Sometimes _____

11) Would you donate the organs of a relative of yours after the withdrawal of support measures in the ICU?

Yes _____ No _____ Only if he/she has stated so _____